Emergency Access Advisory Committee (EAAC) Working Group 3 Recommendations on Current 9-1-1 and Next Generation 9-1-1: Media Communication Line Services Used to Ensure Effective Communication with Callers with Disabilities

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1. SUMMARY

Communication technologies are rapidly changing and expanding. Individuals with disabilities are taking advantage of these trends to meet their communication needs. It is critical that individuals with disabilities are able to call 9-1-1 directly, using new and advanced communication devices.

Direct access to 9-1-1 may include various combinations of technology, such as video, text, voice and data. Individuals with disabilities should have the opportunity to determine which communication method would best help them communicate effectively. For example, videophones are preferred communication mode for individuals who are deaf, deaf-blind and hard of hearing. Video technologies such as Visually Assisted Speech-to-Speech (VA STS) are becoming a preferred communication mode for people with speech disabilities. They feel secure in using this technology to call 9-1-1 and expect telecommunicators to provide effective services for all 9-1-1 calls.

Next Generation 9-1-1 (NG9-1-1) provides the ability to directly connect to 9-1-1 using various devices, which include video, real-time text, voice[1], and data. Direct access to NG9-1-1 will also enable multi-party video conferencing. This will give telecommunicators the opportunity to visually assess the caller and surroundings in order to dispatch appropriate assistance, and record multi-party video conferencing in addition to voice and text communications.

The Emergency Access Advisory Committee (EAAC) recommends that the Federal Communications Commission (FCC), U.S. Department of Transportation (DOT) and U.S. Department of Justice (DOJ) take appropriate steps, wherever necessary, to ensure that Public Safety Answering Points (PSAPs) utilize trained and qualified sign language interpreters (SLIs) and Communication Assistants (CAs) with emergency expertise via Media Communication Line Services (MCLS) during Next Generation 9-1-1 (NG9-1-1) emergency calls.

MCLS is defined as a translation service for people with disabilities and telecommunicators using video, voice, text, and data during NG9-1-1 calls. It is an extension of the language assistance line concept used in legacy 9-1-1 and E9-1-1 Public Safety Answering Points (PSAPs). People with disabilities face various barriers in communicating with NG9-1-1 PSAPs. By utilizing video, voice, text, and MCLS, PSAPs will bridge these barriers by providing the appropriate communication assistance via multi-party calls.

Providing effective communication within the NG9-1-1 environment requires PSAP personnel to be trained and qualified to support MCLS services. SLIs and CAs must be able to handle NG9-1-1 calls and to interpret or assist parties effectively, accurately and impartially in emergency situations as well as use a combination of communication modes accessible to individuals with disabilities. The requirements for MCLS include development of certification standards for qualified personnel, performance standards; and standard operating procedures that require direct access to 9-1-1 for callers with disabilities, as opposed indirect access (e.g. relayed calls).

[1] See also EAAC recommendation P2.2, EAAC Report and Recommendations. Released on 1/26/2012.

EAAC recommends that MCLS become a nationally recognized certified standard service for NG9-1-1.

This paper describes procedures, protocols, and guidelines for setting up MCLS in order to meet the EAAC recommendations.

II. RECOMMENDATIONS

To ensure effective communication to individuals with disabilities in NG9-1-1 environments, EAAC recommends that the following be established:

1) Independent MCLS centers, to be nationally recognized and certified
2) National standard operational protocol (SOP) for MCLS
3) Standard qualifications for Sign Language Interpreters (SLIs) and other types of Communication Assistants (CAs) in handling 9-1-1 calls
4) Standard training for SLIs, and CAs
5) Standard employee assistance program for SLI and CAs
6) Standard quality assurance (MCLS, SLIs, CAs)
7) Consumer Outreach and Education Program
8) General interoperability requirements and technical standards for MCLS and PSAPs
9) Standard policy and operational protocol for contingency plans for MCLS

III. BACKGROUND

The U.S. population currently includes more than 54 million people with disabilities, including people who are deaf, deaf-blind, late deafened, hard of hearing, or who have speech disabilities. For these people, calling for emergency assistance via NG9-1-1 may require use of specific communication modalities that differ from those used by the general population.

The original 9-1-1 system, introduced in 1968, was based on wired telephones connected by copper landlines. Since then, the system has been updated to include features such as automatic number and location identification and enhanced call routing to the most appropriate PSAP. Consumer communication electronics development, however, has outpaced the advancements to the legacy 9-1-1 system. More recent communication technologies are allowing citizens to make not only voice calls, but also to transmit text messages, real-time text, pictures, video, and data.

Today, there are consensus among EAAC and 9-1-1 stakeholders that it is time to update the 9-1-1 infrastructure to enable the transmission of this type of digital information from callers to the 9-1-1 center, and on to the emergency responder community. NG9-1-1 is a system of 9-1-1 services and databases that run on an Internet Protocol (IP) based network, which allows automatic and advanced sharing of digital data among all public safety responders, public safety answering points (PSAPs), emergency management, traffic operations, and other entities. Telecommunicators will be able to process all types of calls, including non-voice (multimedia) calls and messages, and utilize several media simultaneously on the same call.

As per EAAC recommendation T3.4, NG9-1-1 must include the capability to recognize the type of call and language, as well as media preferences, before the call is routed to the most appropriate PSAP, as this saves valuable time in setting up accessible communications.[2] The "most appropriate PSAP" may be one designated to receive MCLS-enhanced 9-1-1 calls – for a number of PSAPs; allowing telecommunicator skills to be consistently used and enhanced; and the cost to be shared among PSAPs.

According to EAAC Report on Emergency Calling for Persons with Disabilities Survey Review and Analysis 2011, two critical issues were emphasized:

a) 83% of respondents indicated that it was very important that they are able to call 9-1-1 using the same device (using text, video, voice, and/or captioned telephone) that they use to typically communicate every day[3] and

b) 77% of respondents emphasized that it was very important to call 9-1-1 directly rather than via relay service.[4]

Information required to signal the call type, language and media preferences for callers with disabilities could be provisioned from different sources. One of the features in NG9-1-1 will include access to a wide range of supportive databases to be used for call processing. One example of such a database would be from subscribers/users account information obtained from application forms filled out by individuals for services and products. It is recommended that two fields be added to the application asking users to indicate their language and communication preferences when they make a 9-1-1 call. However, it is not required for those questions to be answered.

Once information on location, call type, language and media preferences are available, when establishing an emergency call, NG9-1-1 policy routing database entries can be used to route the call to the appropriate PSAP and automatically determine the appropriate interpretive services to be added to the multi-party conference. This will save time in determining how to communicate with the caller through video, voice, real-time text and other considerations needed for the user. Examples of databases from which information can be obtained are subscriber/user account information, relay service providers, communication devices, medical equipment information, alarm system, profiles stored in the emergency service system and other information pertaining to callers.

Appendix A describes this schema for sign language communications via video. Note: other types of interpretive services via other media should be arranged in similar ways.

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[2] EAAC Report and Recommendation, http://www.fcc.gov/document/eaac-report-and-recommendations, page 33

[3] EAAC Report on Emergency Calling for Persons with Disabilities Survey Review and Analysis 2011, question # 23 on page 30

[4] EAAC Report on Emergency Calling for Persons with Disabilities Survey Review and Analysis 2011, question #22 on page 29

A. Technical Standards

EAAC has become aware of ongoing activities in standards development organizations and industry forums related to use of caller profiles and accessible communication for deciding on invocation of assisting services in calls. EAAC recommends that the FCC and DOJ check the status of these actions and use as much of them as feasible when MCLS services are implemented. People with disabilities expect to use the same device they use in everyday communication, for direct calls to 9-1-1. It is crucial that equipment and services support the NG9-1-1 standards and MCLS services.

1) 3GPP work on Modality Requirements and Preferences

3GPP standardizing wireless communication has, during 2012, initiated work on defining user profiles for indicating and negotiation of language and modality requirements and preferences. This will enable NG9-1-1 to detect need for invocation of MCLS.

The service specification 3GPPTS 22.101 has been modified with the approach to make emergency service user profiles, but was changed to be of general value.

2) ETSI work on Total Conversation Access to Emergency Services

The standardization body European Telecommunications Standards Institute (ETSI) has just completed work and published a technical report on the topic of Total Conversation Access to Emergency Services. The document describes many aspects of emergency calls with video, audio and real-time text. Profile usage for invocation of services is included. The report is numbered ETSI TR 104 170. It describes the needs and recommended functions in general terms, as well as specifically for the native Session Initiation Protocol (SIP) and the Internet Protocol Multimedia Subsystem (IMS) multimedia telephony technologies.

As of December 2012, the work continues with a technical specification on the same topic called *ETSI TS 101 470 Total Conversation Access to Emergency Services;* with similar topics but more strict implementable style.

3) SIPForum Video Relay Service Working Group

SIPForum (December 2012) started work on creating a specification for relay services with the purpose to harmonize relay services and enable interoperability between users of relay services. The focus is on video relay services, but other services will also be mentioned. Profile usage and emergency calling are both within scope for this work, which is planned to be ready during 2013.

B. Video Technologies

Video technologies are increasingly becoming popular and it is expected that they will become a common mode of communication for everyone. As a result, it is also likely that individuals will expect to call 9-1-1 directly using video technologies. Some of those callers could be people with disabilities.

Additionally, non-English speaking people have been calling 9-1-1 directly for many years and PSAP telecommunicators have been connecting these calls with language services in order to effectively communicate. This becomes in essence a conference call (see Appendix B). These non-English speaking callers are not required to pre-register. Telecommunicators simply assess what language is necessary. If the Telecommunicator is not able to determine the language, s/he transfers the call to contracted language services for assistance. Language services have someone who does assessments before transferring the caller to an interpreter speaking a similar dialect.

A similar service and process should be available to people with disabilities that use varying modalities for communication such as, but not limited to, telephone captioning or video telephones for American Sign Language (ASL). This process serves as a fallback for situations where the caller's preferences cannot be recognized automatically (via preregistration) before connecting to the PSAP, as described above. One such example would be the situation where the person with disabilities borrows someone else's phone to call 9-1-1.

According to Registry of Interpreters for Deaf (RID), there were approximately 4,000 video sign language interpreters (VIs) working for video relay service providers in 2007.[5] However the usage of video technologies in several devices such as computers, smart phones and tablets has expanded since the publication of the RID's *Video Relay Service Interpreting: Standard Practice* paper. Usage of video relay services has increased. It is assumed there are approximately 5,000 VIs for 125 video relay call centers nationwide[6]. They process approximately 8.9 million minutes of typical relay telephone calls between sign language and voice each month[7]. There is currently no data indicating the number of minutes or calls to 9-1-1 .

Working conditions vary from provider to provider. VIs are trained to be transparent, non-participatory, and confidential. They are screened for employment based on their ability to receive and express sign language.

C. The PSAP Response

The average speed with which 9-1-1 calls are processed by PSAPs varies among Internet Based Telecommunications Relay Services (iTRSs) such as Video Relay Service (VRS), Internet Protocol (IP) Relay Service, and IP Captioned Telephone Service (IP CTS). The NENA standard requires that 90% of all 9-1-1 calls to be answered within 10 seconds.[8] The FCC regulations require iTRS providers to respond to 80% of all calls (not specifically emergency calls) in 120 seconds (VRS) or 10 seconds (IP Relay and IP CTS) and 9-1-1 relayed calls are to

[5] http://www.rid.org/UserFiles/File/pdfs/Standard_Practice_Papers/Drafts_June_2006/VRS_SPP.pdf
[6] Since the exact data is confidential and proprietary, the posted figures are reasonably estimated.
[7] The website Rolka Loube Saltzer Associates (RSLA, the FCC TRS administrator includes the Performance Status report dated July 2011 to June 2012 - see http://www.r-l-s-a.com/TRS/reports/2012-06TRSStatus.pdf
[8] NENA 56-005, Section 3.1, Standard for Answering 9-1-1 Calls

receive priority. However, there is no FCC standard regulation for 9-1-1 relayed calls to be connected to the appropriate PSAPs within reasonable time, which is inconsistent and unsafe.

The public believes calling 9-1-1 will result in immediate help. Those who are deaf, deaf-blind, hard-of-hearing or have speech disabilities trust that their 9-1-1 call responses will be immediate and functionally equivalent.

D. Well-Being of SLIs and CAs

Another area of concern is the well-being of SLIs and CAs. Research studies on occupational hazards indicate that VRS is the most stressful and depressing setting for the interpreters[9], mostly due to unexpected calls and demands posed by emergency calls.

There is currently no national and uniform standard for relay service providers in processing 9-1-1 calls, or training protocols for SLIs and CAs. Protocols, policies and procedures for training staff vary for each relay service provider and/or call center. The provision of specialized training to approximately 5,000 non-emergency VRS interpreters, to handle emergency-related calls, is considered costly and challenging. But standard, specialized training is exactly what is needed in order to for effective communications to occur between the caller and 9-1-1.

IV. SUMMARY OF ISSUES

Due to rapid changing communication technologies, Media Communication Line Services (MLCS) must be established to facilitate 9-1-1 calls in the NG9-1-1 environment in order to allow individuals with disabilities to make direct 9-1-1 video calls using different communication modalities. Both MCLS call centers and PSAPs need to adhere to pertinent standards for NG9-1-1 to be fully interoperable.

Standard personnel qualifications (operational training, Sign Language Interpreters' & Communication Assistants' skills qualification, etc.) should be developed for handling NG9-1-1 calls.

There is a need to establish standard operating procedures for PSAPs to handle calls from individuals with disabilities who have voluntarily identified their communication preferences and modes.

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[9] R. Dean (2010). Occupational Health Risks in Different Interpreting Work Settings. University of Rochester. Online: http://www.imiaweb.org/uploads/pages/564_2.pdf (last accessed: 12/21/2012) and Dean, R. K. & Pollard, R. Q (2001). The application of demand-control theory to sign language interpreting: Implications for stress and interpreter training. *Journal of Deaf Studies and Deaf Education 6* (1), 1-14

V. FUNCTIONAL REQUIREMENTS FOR CALLERS

The following requirements are associated with the caller's ability to effectively communicate with PSAPs. Callers must be able to:

a) Call 9-1-1 directly using any device and/or apps via video, text, voice, and data anytime using 3-digit numbers (9-1-1);
b) Express their communication preferences and receive appropriate MCLS whenever necessary to communicate with 9-1-1 telecommunicators, independent of caller data or profile (e.g., subscriber/user account information);
c) Identify communication preferences within the information provided during call establishment so that MCLS can be automatically invoked at a PSAP;
d) Request a change in MCLS or an additional MCLS when necessary (e.g,. by switching the mode of communication during a call from text to sign language) without having to disconnect the call; and
e) Use their preferred terminal for 9-1-1 calls, and have their terminal support multipoint video conference calls with PSAPs and MCLS.

VI. FUNCTIONAL REQUIREMENTS FOR TELECOMMUNICATORS

A Telecommunicator must have ability to:

a) Provide and maintain quality MCLS service to callers with disabilities;
b) Provide appropriate auxiliary services based on callers' communication needs, preferences and expectations;
c) Determine and clarify caller preferences, needs and expectations;
d) Augment caller data (subscriber/user account information) with information about communication needs and preferences allowing the telecommunicator to better target and assess communication preferences;
e) Anticipate caller preferences, needs, and expectations during the call and provide MCLS in a timely manner, appropriate to caller needs and preferences;
f) Offer possible extras and add-ons appropriately and provide additional MCLS services where appropriate;
g) Identify problems in services and take action immediately to address them;
h) Modify MCLS (e.g., mode of communication, media types) whenever necessary;
i) Initiate or terminate a MCLS service without having to disconnect the call;
j) Replace SLIs/CAs as needed;
k) Provide a MCLS service to a caller, independent of relay services;
l) Communicate with the caller and SLIs/CAs in a multipoint video conference call; and
m) Access a multipoint control unit (for media) and focus (for signaling) in all conference calls so that it is possible to connect multiple video and audio end points to conferences simultaneously.

VII. DIFFERENCE BETWEEN MEDIA COMMUNICATION LINES SERVICES AND TELCOMMUNICATIONS RELAY SERVICES

Today, an individual who uses VRS dials 9-1-1 on their device and is first connected to a video interpreter (VI), then the VI connects to the PSAP (sometimes there is another connection to a third party in-between the VI and the PSAP for call routing purposes) (See diagram in Appendix C). The FCC requires that individuals who may call 9-1-1 are to be given a10-digit number including area code for the PSAP after registering with their preferred relay service(s). Registration includes the caller's name, physical address and 10-digit number. When the individual calls 9-1-1 via VRS today, the caller information should be electronically transmitted to the PSAP's with the automatic number identification/automatic location identification (ANI/ALI) screen. However, sometimes the caller information does not appear on the ANI/ALI screen because the call goes through an administrative line other than the 9-1-1 trunk line.

Each relay service provider is required to train their sign language interpreters on proper handling of 9-1-1 calls; however, the content, depth and length of training varies from one provider to another. There are currently no training standards. Each VRS provider develops their own protocols for how the calls are to be handled. There is no national standard for relay service providers' processing of 9-1-1 calls. Also, there are no minimum requirements or standards to determine whether video interpreters are qualified to interpret 9-1-1 calls.

Therefore, in order to address this aforementioned issue, Media Communication Line Services (MCLS) must be implemented and functioned like any language services with which PSAPs have contracts. When a video call is connected to 9-1-1 directly, the telecommunicator connects the caller with the MCLS call center (or the connection is established automatically based on the caller's profile) – the same concept as when the telecommunicator connects to language services whenever a foreign language speaker calls 9-1-1 (see diagram in Appendix D). Like other PSAP telecommunicators, the SLIs and CAs will be required to go through physical and psychological evaluations to determine their capability to perform their job in a stressful environment. SLIs and CAs will be specifically trained to handle 9-1-1 calls using varying communication modalities to accommodate the needs of individuals with disabilities. Also, PSAP telecommunicators should be trained to handle video calls as well as auditory communication modes.

Multi-party video conferencing will allow telecommunicators the opportunity to visually assess the caller and/or surroundings in order to provide appropriate assistance. NG9-1-1 will record all media types present in video conferencing calls.

Additionally, many consumers who are deaf or hard of hearing who use ASL as a secondary language (oral or late-deafened) may benefit from using both video for ASL and speech reading and captions. MCLS should have the ability for the telecommunicators to connect in multiple ways, including audio, video (see the interpreter and the telecommunicator synchronously) and /or captions via real-time text.

Furthermore, the VRS providers have obligation to accommodate their services to comply with the FCC regulations where revisions and compensations may be made only after time-consuming public rulemaking processes. The MCLS call centers will need to update their services and

technology, from time to time as needed, independently of VRS policies as required by FCC. The EAAC recommends that the certification requirements for the MCLS call centers to be developed by the FCC, DOJ, DOT, and other federal agencies.

VIII. MCLS ESTABLISHMENT

PSAPs that receive calls from callers using varying communication modalities (video phones, captioned phones) will have seamless multi-conference connection abilities to any of the nation's MCLS call centers.

In order to effectively provide direct connect 9-1-1 services to all people using various communication modalities, the EAAC recommends that the FCC should require the establishment of multiple MCLS call centers, for redundancy and in order to ensure that any PSAP can connect conference services in a single call. Criteria for technical requirements, operational requirements, training requirements, and sustained funding must be considered prior to establishment.

Established MCLS call centers should be able to provide video and text language services for people with disabilities who use varying methods of communication, including but not limited to American Sign Language and captioning. MCLS call centers must have established training credentials and certifications for ALL qualified SLIs and CAs to adequately meet the needs of emergency callers using varying communication methods.

Accreditation of MCLS call centers include setup requirements and training credentials for meeting the needs of emergency callers using varying communication methods as described in following pages.

IX. GENERAL REQUIREMENTS FOR BOTH MCLS AND PSAPs

PSAPs should have the ability to instantly connect to the MCLS call centers, established throughout the United States. MCLS call centers should be strategically located throughout the country, so as to achieve redundancy in the face of disasters that affect the ability of any one center to maintain operations. Direct connection to these call centers should be available for all PSAPs. PSAP telecommunicators should have the technological ability to connect to MCLS in a timely manner.

In order to have multi-video conferencing with text and voice, both PSAPs and MCLS agencies should include the following list of requirements in their system for smooth call processing:

a) Network connectivity to different network systems at same time
b) Location determination for mobile devices (GPS), and ability to obtain location within mobile applications
c) Ability to convey location, call type and language preferences within signaling
d) Redundancy
e) Overflow routing and connection abilities to multiple MCLS call centers

f) Ability to connect to different devices and services
g) Timeline for implementation including how each PSAP will transition from using VRS or TRS to direct connect to MCLS call centers for direct 9-1-1 service for people with disabilities.
h) Quick and seamless connection from PSAP to MCLS Call Center
i) Protocols and codecs for audio, real-time text, video and text messages (as per the NENA i3 standards, and EAAC recommendation T2.1)[10]
j) Multi-video conferencing, including voice and text for all parties
k) Media quality standard for video, audio and text. (need to set up minimum requirements on high quality media for both download and upload, sufficient to meet all callers' communication preferences)
l) Technical factors adaptive to user's connection capacity (especially video bandwidth adaptation)
m) Ability to handle addition of users to conferences via dial-in and dial-out, as well as other call operations
n) Security and privacy during the transmission of all communication channels and media
o) Queue information in video and text
p) Include different communication modalities (text, video, voice, data)
    1) Types of communication preferences
        a) American Sign Language (ASL)
        b) Other sign language systems (i.e., Signed Exact English (SEE), Conceptually Accurate Signed English (CASE), Pidgin Sign English (PSE), Cued Speech)
        c) Sign language and text (real-time text or messaging)
        d) Voice and sign language with captions
        e) Voice (with or without speechreading via video) and captions
        f) Sign language one way, 9-1-1 text or voice back (i.e., Deafblind)
        g) Speech-to-Speech support[11]
        h) Language, memory and cognitive support
        i) Augmentative Alternative Communication (AAC) devices[12]
        j) Any combination of text, voice and sign language

X. MCLS OPERATIONS IN PRE-NG9-1-1 ENVIRONMENT

The EAAC believes that achieving equal access to 9-1-1 emergency services by individuals with disabilities is part of the migration to the national Internet protocol-enabled emergency network (NG9-1-1) and is a matter of long-term national policy. However, there are steps that need to be considered for preparing MCLS call centers for transition to NG9-1-1 environment.

[10] EAAC Report and Recommendation, http://www.fcc.gov/document/eaac-report-and-recommendations, page 30
[11] http://www.fcc.gov/guides/speech-speech-relay-service
[12] AAC assists an individual with speech disability to communicate via electronic or non-electronic devices. http://www.ussaac.org/aboutaac.htm

EAAC has found that current video and IP relay service providers have frequently improperly delivered or handled emergency calls to Public Safety Answering Points via the existing 9-1-1 networks, as required by FCC regulations. EAAC recommends the implementation of a national Media Communication Line Services (MCLS) through either a national entity or through regional entities. Therefore, criteria for technical requirements, operational requirements, training requirements, and funding continuity must be considered prior to establishment of MCLS. Specifically, EAAC recommends that the Commission:

1. Work with US DOJ, DOT and appropriate federal agencies to take the appropriate steps to expedite any regulatory changes needed to adopt the recommended solution. Among regulatory changes include:
    a) Policies, procedures and practices relating to ASA between callers and PSAPs
    b) System redundancy
    c) Contingency and back-up plan
    d) Call-back procedures
    e) Qualification of SLIs and CAs for handling emergency calls via relay services
    f) Training requirements for SLIs and CAs including varying communication methods to accommodate needs of callers
    g) Certification for MCLS call centers
2. Collaborate with relay service providers and MCLS centers to develop interim recording and retaining relayed calls in accordance with State and local PSAPs' policies and procedures;
3. Require VRS/IP Providers to make their service compatible with recommended guidelines as set forth in National Emergency Number Association (NENA) Specification for i3 Solution in order to forward all 9-1-1 calls to a MCLS center.[13]

XI. MCLS STANDARDS

MCLS shall maintain highly skilled SLIs and CAs to provide effective communication services between callers and Telecommunicators during crisis calls. The MCLS should include the following:

a) Line Services
b) Privacy and security in studio arrangement
c) Availability of interpreters, CAs, and services 24/7/365
d) Certified Deaf interpreters (CDI) who are native or near native in ASL, to provide assistance to interpreters as back-up whenever the interpreters are not able to understand sign language users
e) Length of response time from SLI or CA
f) Teaming-up of multiple interpreters and/or CAs for maximum efficiency and speed of communication

[13] http://c.ymcdn.com/sites/www.nena.org/resource/collection/2851C951-69FF-40F0-A6B8-36A714CB085D/NENA_08-751-v1_i3_Requirements_LTD.pdf

g) Time to respond after an incoming request for services (mean value and max for 97% of the calls)
h) Contingency Plan, to include ability to transfer the service to another call center.
i) Redundancy for catastrophic situations. Service centers in different locations. Redundant communication routes.
j) Liability
k) Consistent and uniform policies regarding various communication situations
l) Unique operator identification in a way that protects their privacy (such as ID number), so that they can be identified for reporting or quality assurance purposes, or asked for during resumption of a disconnected call.
m) Call case logging
n) Compensation for services rendered to include
   1) Stand-by
   2) Minutes for calls

XII. SIGN LANGUAGE INTERPRETERS AND COMMUNICATION ASSISTANTS

The role of Sign Language Interpreters (SLIs) and Communication Assistants (CAs) is to translate, transliterates or interpret conversation between one or more end users.

A. Minimum Skills

The MCLS agency is responsible for hiring qualified and skilled VIs and CAs to handle relayed 9-1-1 calls between callers using different modalities and 9-1-1 Telecommunicators. Intensive training for handling emergencies is required.

Both SLIs and CAs must demonstrate competency in:

- Typing (60 wpm)
- Spelling (how many errors acceptable?)
- Interpretation of sign language in various modes and styles
- Interpretation of written communication of people with disabilities
- Knowledge of hearing and speech disability cultures
- Etiquette

It is critical that both SLIs and CAs should possess the following specified skills for providing effective communication performance during emergencies, similar to PSAP Telecommunicators. The SLIs and CAs will be required to go through physical and psychological evaluations to determine their capability to perform the essential functions of the job in a stressful environment. SLIs and CAs may also be required to go through drug screening, criminal history check, polygraph exam, and/or computerized voice stress analysis. SLIs and CAs will be intensively trained to handle video 9-1-1 calls using different communication modalities to accommodate the needs of individuals with disabilities.

B. Certification

The requirement that qualifies sign language interpreters or CAs to work in a MCLS agency is to have skill sets to handle 9-1-1 calls.

Sign Language Interpreter (SLI): According to the ADA, a "qualified" Interpreter is able to interpret effectively, accurately and impartially both receptively and expressively, using any necessary specialized vocabulary. The interpreter must possess National Interpreter Certification (Master, Advanced), Certificate of Interpretation (CI) and/or Certified Deaf Interpreter (CDI) from Registry of Interpreters for the Deaf (RID) or certification from state agencies.

Communication Assistant (CA): There currently is no available certification specific to CAs. However, we recommend that as part of the MCLS procedures and policies, appropriate certifications are developed for CAs handling 9-1-1 calls.

SLIs and CAs must have completed the training, specifically designed for handling 9-1-1 calls from people who are disabled, as described in the next few pages. Additional certification and training criteria should be established for MCLS call centers.

A team of qualified individuals, expert in sign language and communication assistance, should be established to evaluate SLIs and CAs for skills and qualifications. Recommendations of evaluators selected for the team shall be freelance interpreters, staff from sign language interpreter agencies, teachers of ASL, teachers/board members of state deaf schools, teacher working with individuals with speech disabilities & disabilities, members of American Sign Language Teachers Association chapters (ASLTA), officers of Deaf organizations/clubs, National Association for Hearing and Speech Action (NAHSA), United Cerebral Palsy Foundation, or national organizations or associations servicing persons with disabilities and individuals with speech disabilities and/or disabilities. This group shall be diverse, neutral, and professional in order to evaluate appropriately and to determine the results without any possible conflict of interest.

C. Minimum Qualification (error rate of text, rate of delay)

Handling 9-1-1 calls can be highly stressful and require SLIs and CAs to be able to relay messages both receptive and expressive effectively between both parties.

Desirable Minimum Experience:

Sign Language Interpreters

- 5 years or more community interpreting experience (consisting of at least 2 years of law enforcement and/or medical emergency interpreting services)
- At least 1,000 hours of in VRS experience
- Speak word by word or translate to English while reading text messages from the caller
- Have taken Deaf studies or knowledge of Deaf culture from the early 1900's to current year.
- Vast knowledge of classifiers including facial expressions, body language, etc.

Communication Assistants

- 5 years or more as speech therapist, speech language pathologist or have worked with people with speech disabilities
- At least 1 year experience in Speech-to-Speech (traditional/video) with more than 1000 hours
- At least 1 year experience in text relay with more than 1000 hours
- Knowledgeable of speech patterns (neurological and language)
- Speak word by word or translate to English while reading text messages from the caller

D. Communication Capability Requirement

The SLIs and CAs must possess the following skills to be qualified as employees with the MCLS agency.

Sign Language Interpreter:

- Must be able to handle callers with various communication modalities (sign, voice, text)
- Must be able to use receptive and expressive skills with regional signs, signs for names & locations
- Must be able to speak word by word or translate to English while reading text messages from the caller
- Must be able to work with callers who have other disabilities in addition to those with hearing loss, vision loss, mental health, limited language skills, etc.

Communication Assistant:

- Must have an understanding of various types of speech disabilities (neurological and language)
- Must also possess clear and articulate voice communications
- Must be patient
  - some callers may have long pauses
  - some callers may not be clear so therefore they would be asked to repeat or to clarify
  - some non-disabled people may become frustrated
- Must have strong listening skills
  - some callers may have garbled speech

E. Skills Evaluation (voice, sign, type)

It is recommended that SLIs and CAs be evaluated by a neutral group of subject matters experts (SMEs) to ensure the SLI and CA are qualified in handling 9-1-1 calls. See Section XI B for recommendations on criteria of evaluators.

Also it is recommended that SLIs and CAs have their performance review at least every 6 months.

Sign Language Interpreter:

- Voice translation
- ASL translation in various communication style

Communication Assistant:

- Revoicing
  a) People with varying speech disabilities
  b) People who are deaf, deaf-blind or hard of hearing

CAs should be evaluated for their re-voicing for people with various degrees of speech intelligibility at least every 6 months.

XIII. TRAINING

Effective communication is required when a caller who is deaf, deaf-blind, hard of hearing, who has a speech disability or who has another disability, calls a PSAP. Training is required for all parties involved. PSAP Telecommunicators should be properly trained on methodologies for connecting to the MCLS call center. If a caller is seen as well as heard by the Telecommunicator or if text communication is received, the PSAP Telecommunicator should be aware of how to effectively connect to MCLS call center for multi-party conferencing and to provide service in the most expedient and seamless way possible.

A. Sign Language Interpreters (SLIs)

SLIs should be qualified to provide functional equivalency for communication through, but not limited to, oral interpreting, written captions, or any combination. This will help expedite effective communication and response for services during 9-1-1 calls. Training for SLIs shall include, but are not limited to:

1. Procedures for connecting and multi-conferencing with SLI or CA to a caller and a PSAP Telecommunicator.
2. Emergency communications training, for interaction between callers, Telecommunicators, and emergency responder personnel.
3. 9-1-1 protocol training for emergency response, similar to training provided to Telecommunicators. SLIs will receive training on procedural matters and incident command for emergency responders. This will help SLIs understand the needs of responders on the scene and what will be communicated to the caller and how to interpret it properly
4. 9-1-1 and emergency responder awareness (e.g., fire, law enforcement, emergency medical services [EMS]), and 9-1-1 call handling methodologies. This training will include medical terminology (and appropriate signs), legal terms, procedures, and local agency names. Additionally, incidents that are likely to result in high volume calls (e.g., automobile accident on a crowded roadway, missing persons, etc.) should be described and discussions should occur on how these call types affect these processes. These scenarios will provide SLIs with an overview of actions and

decisions being made by the PSAP Telecommunicators and allow for SLIs to provide better transparency to both the caller and the Telecommunicator.

5. Basic first aid and cardiopulmonary resuscitation (CPR) training. The training would help SLIs to understand techniques and procedures described by a Telecommunicator during a relevant emergency call (e.g., choking, checking a pulse, etc.) and also to provide appropriate signs to callers.
6. Critical incident care. Critical incident care refers to assisting callers with critical incident call handling (appropriate tone and statements to a survivor of an incident or someone who is assisting a survivor. Critical incident care also refers to self-care for the SLI or CA and stress management in dealing with vicarious trauma (See Section XIII – Critical Incident Stress).
7. Regionally appropriate signs, name signs, and signs for specific locations and people.
8. Deaf culture from the early 1900's to current year.

B. Communication Assistant (CA)

A Communication Assistant (CA) should be available for people with hearing loss and limited/ no proficiency in American Sign Language (ASL) when contacting 9-1-1. CAs should be qualified in the same areas as a SLI to provide functional equivalency for communication through, but not limited to, oral interpreting, written captions, or any combination.

While there is not a required length of training for CAs in their current roles, the FCC requires that all CAs be sufficiently trained to effectively meet the specialized communications needs of individuals with hearing and speech difficulties. CAs are required to possess competent skills in typing (minimum of 60 words per minute), grammar, spelling, interpretation of typewritten ASL, and familiarity with hearing and speech disability cultures, languages and etiquette. CAs must also possess clear and articulate voice communications.

CAs should receive more extensive training for handling 9-1-1 or emergency calls through a MCLS call center. CAs should receive training and evaluation in the following areas:

1. Procedures for connecting and multi-conferencing with SLI or CA to a caller and a PSAP Telecommunicator.
2. Emergency communications training, for interaction between callers, Telecommunicators, and emergency responder personnel.
3. 9-1-1 protocol training for emergency response, similar to training provided to Telecommunicators. SLIs will receive training on procedural matters and incident command for emergency responders. This will help SLIs understand the needs of responders on the scene and what needs to be communicated to the caller and how to interpret it properly.
4. 9-1-1 and emergency responder awareness (e.g., fire, law enforcement, emergency medical services [EMS]), and 9-1-1 call handling methodologies. This training will include medical terminology (and appropriate signs), legal terms, procedures, and local agency names. Additionally, incidents that are likely to result in high volume calls (e.g., automobile accident on a crowded roadway, missing persons, etc.) should be described and discussions should occur on how these call types affect these

processes should occur. These scenarios will provide CAs with an overview of actions and decisions being made by the PSAP Telecommunicators and allow for SLIs to provide better transparency to both the caller and the Telecommunicator.

5. Basic first aid and cardiopulmonary resuscitation (CPR) training. The training would help SLIs to understand techniques and procedures described by a Telecommunicator during a relevant emergency call (e.g., choking, checking a pulse, etc.) and also to provide appropriate signs to callers.
6. Critical incident care. Critical incident care refers to assisting callers with critical incident stress as required (appropriate tone and statements to a survivor of an incident or someone who is assisting a survivor. Critical incident stress also refers to self-care for the CA and stress management in dealing with vicarious trauma (See Section VII – Critical Incident Stress).
7. Regionally appropriate names and specific locations or terms.
8. Deaf/Hard of Hearing culture from the early 1900's to current year.

C. PSAP Telecommunicators

PSAP Telecommunicators should be trained to handle video calls as well as auditory communication modes used by people with speech disabilities. Multi-video conferencing will be included in NG9-1-1. This will give Telecommunicators the opportunity to assess the caller and surroundings in order to send appropriate assistance. NG9-1-1 will record the video of multi-video conferencing.

PSAP Telecommunicators should receive specialized training in order to provide effective communication for consumers using alternative communication methods. Training must include, but is not limited to:

1. Procedures for connecting and multi-conferencing with a caller and SLI or CA.
2. Information on the roles/responsibilities of SLIs and CAs during a call. Telecommunicators should speak directly to the caller and assist in seamless communication whereas SLI or communications assistant remain as transparent as possible. In other words, Telecommunicator should not speak to SLI and say "tell him/her this or that." Questions or comments should be made as if no SLI were present.
3. Policies and procedures for connecting to an SLI or CA as needed. Telecommunicators should be trained on identifying callers who may have the need for SLI or communications assistant.
4. Protocols for handling the lag time while finding the language, ASL, or communications assistant and connecting to SLI or CA (and acceptable rate of delay).
5. Procedures and scenarios for the possible lag time between SLI or communications assistant and the caller before information can be conveyed.
6. Use of short sentences and simple vocabulary and short phrases to convey questions and instructions. For example, during an emergency medical dispatching (EMD) scenario, if there is no understanding, the Telecommunicator may be allowed to rephrase. Simpler words, such as "awake" instead of "conscious", should be used.

7. Basic overview of the language differences between spoken language and ASL, such as the importance of facial expressions, classifiers, and the different syntax of ASL.
8. Differences with the varying modalities of communications and the people who use them. All people who use communication assistance do not have equivalent knowledge and proficiency with varying modalities of communications. For example, false statements: "all people who are deaf or hard of hearing read lips", or "all people who are deaf or hard of hearing know sign language" or "all people who are deaf or hard of hearing have an equal understanding of written English and can read captions, etc."

D. Learning Methodologies and Resources

Some education or training may be both efficient and cost-effective if done through online training methods. However, collaboration with other members of the PSAP community makes some face-to-face training scenarios the optimal method. A blended learning path for all individuals is recommended.

1. Simulations

PSAP Telecommunicators, SLIs and CAs will participate in training drills, table top exercises, and simulations to prepare them for assisting people who are deaf, deaf-blind, hard of hearing or speech impaired.

2. MCLS

The use of MCLS call centers and PSAPs, from the beginning of the call, saves valuable time in an emergency. MCLS will be effective for calls that can be automatically connected as well as non-automatic connection. Proper training in uniform procedures, especially hand-on activities, provides for effective handling. Training prerequisites need to be established.

3. Resources

Multiple resources are available for MCLS to engage in these types of training efforts. MCLS should work with local PSAPs to coordinate training efforts or to look for recommendations for outside training courses. With the transition to NG9-1-1, training courses and resources for video emergency calls should become more widespread and uniform. State and local chapters of the National Emergency Number Association (NENA) and the Association of Public Safety Communications Officials (APCO), as well as the National Academies for Emergency Dispatch (NAED) provide additional information on training courses, training standards, and additional detail on any of the described topics.

XIV. CRITICAL INCIDENT STRESS MANAGEMENT (CISM)

The EAAC recommends that qualifying MCLS agencies are required to provide critical incident stress management services to their employees. Proper stress management methods and training for SLIs and CAs is essential to protect the health and well-being of employees. By handling a video emergency call, SLIs and CAs are potentially exposed to traumatizing events. Current research is beginning to show a correlation between emergency call handling and symptoms of post-traumatic stress disorder (PTSD), and researchers believe that the addition of video to a call will only compound these effects. It is important that SLIs and CAs are provided proper stress management training and proper outlets to help cope with stressful situations.

A March 2012 report discusses findings that suggest physical exposure to an incident may not be necessary to cause symptoms of PTSD in Telecommunicators.[14] With the advent of NG9-1-1, researchers and the 9-1-1 stakeholder community, including the FCC's Communications Security, Reliability and Interoperability Council (CSRIC), are concerned that the addition of video to emergency calls could have a negative impact on Telecommunicator emotional wellbeing.[15] These are concerns that currently face SLIs and CAs today.

According to the REACH112 project in Europe, the reports indicate that PSAP Telecommunicators, after working with video in emergency calls, are in general very positive to the medium, and the concerns they had before beginning to work with video in 112 calls were reduced. Having video available to convey the impression of professional handling, and to perceive more information by viewing directly rather than interpreting answers, can be very satisfying and reduce stress appearing otherwise by being distanced from the emergency scene and the frustration of not getting sufficient information through questions and answers.

Ongoing stress management training is essential for SLIs and CAs to be able to perform their job at the high degree of efficiency necessary to provide the service required during an emergency call. This type of training provides SLIs and CAs with scenarios that can cause stress, how to perform during these situations, and how to cope with the situation in the hours, days, and weeks following the event. Trainees are also provided with resources (e.g., hotlines, reading materials, councilor information, etc.) to obtain assistance following a traumatic incident.

In addition to ongoing stress management training, there are multiple tools that SLIs and CAs can leverage to aid in coping with stressful incidents. Comprehensive CISM programs can be implemented that focus on peer driven support immediately following an incident with periodic follow-ups to ensure personnel are handling stress in a healthy manner. Peer support and an open dialogue about the different ways to deal with stress in the work place can greatly improve effectiveness of stress management programs. Additionally, mentoring programs provide guidance to new staff and allow for seasoned staff to provide support from an experienced

[14] Pierce, H. & Lilly, M. (2012) Duty-related trauma exposure in 9-1-1 telecommunicators: Considering the risk for posttraumatic stress. Journal of Traumatic Stress 25(2), pp. 211-215, April 2012. DOI: 10.1002/jts.21687

[15] CSRIC II WG4B Final Report, p. 33: http://transition.fcc.gov/pshs/docs/csric/CSRIC-WG4B-Final-Report.pdf

source. Group or individual counseling sessions allow for discussions to occur in a safe place with a professional who is trained in helping communications professionals dealing with extremely stressful and emotional working environments.

XV. MONITORING AND EVALUATION

A. Quality Assurance

In order for MCLS call centers to provide effective services, it is critical that the centers are to modify on a timely manner based on:

a) Feedback method on the services rendered.
b) Statement in the contract that gives right to not use a specific SLI.
c) Electronic method to report issues quickly during or after a call.

B. Evaluation of Recording for Legal purpose

1. PSAPs record and store video conversation for a specific period of time, according to state or local law. These recording may be evaluated if:
   a) Internal to the PSAP - it is recommended that the recording be evaluated by a neutral group of SMEs as defined in Section XI B.
   b) Court – A recording may be requested or be subpoenaed for legal purposes. Recording may be evaluated by request.

2. MCLS call centers may review caller conversations for quality assurance and training purposes in the same manner as any PSAPs.

XVI. CALLER PROFILES

As indicated in the background section, there are discussions in various groups about the benefit of user profiles for rapid guidance during 9-1-1 call establishment in order to achieve suitable service in the call. Storage of such profiles can be arranged for use in the NG9-1-1 environment.

The discussion in this chapter covers profiles stored in the NG9-1-1 system, while some conclusions may be valid also for profiles stored in other parts of the communication systems.

The profiles to be stored in the NG9-1-1 system could cover factors of interest in emergency situations. Generally, it is not necessary for anyone including individuals with disabilities to store such information with 9-1-1. The main goal of NG9-1-1 is to process all types of emergency calls including non-voice (multi-media) calls and messages. Individuals with disabilities, like any non-disabled individuals, can choose to store profiles or not. It is essential that everyone should be informed on the advantages and disadvantages of registering profiles with 9-1-1. Caller profile registration must be voluntary and may provide valuable information regarding medical conditions, type of disability, language, and/or communication modes as well as other critical data for first responders in the most seamless method possible in time of emergency.

The privacy and confidentiality of persons with disabilities must be protected. There are many issues around this type of data due to HIPPA laws and, whenever it becomes available, the caller will have to indicate in their information data that it is permitted to release to authorized personnel. There are current discussions on who is "authorized" and whether this is only for EMT or licensed medical person or if this should include 9-1-1 Telecommunicators or dispatchers.

While information included in signaling may help eliminate some educated guess work by the Telecommunicators as to what communications assistance is required (ASL, captions, oral interpreter, Spanish or other languages), additional data or the caller profile may provide PSAPs additional information such as medical condition, type of disability or other critical information that callers wish for first responders to be aware. PSAPs are encouraged to explore and collaborate with local communities on the best practices for creating and maintaining caller profile registrations. PSAPs are also encouraged to work with individual companies and consumers to acquire access, where possible, of caller profiles to eliminate redundancy. The maintenance of the profile should be the responsibility of the individual consumer, renewed a minimum of six months.

Callers who may have data information stored for retrieval during the emergency call may make a quick and synchronous connection to appropriate PSAP & MCLS. In a same manner as ANI/ALI, the communication preference, language preference, medical information, and frequent physical addresses will appear on Telecommunicator screen. Also Telecommunicators will be able to see the caller profile and to provide appropriate services to callers who may not be able to communicate their needs. (See diagram in Appendix D) The challenges for individuals who do not have stored data information include time delays in finding out communication preference, getting MCLS on the line, and limited access to callers' information that may be pertinent to the emergency, such as information about medical conditions or type of disability. (See diagram in Appendix E)

A. Emergency Profile or Registry Recommendations

The concept of NG9-1-1 is to have access to a wide variety of databases for routing or call processing. Examples of databases are subscriber/user account information with services and/or products, relay service providers, communication devices, medical equipment information, alarm system, vehicle telemetry, and other data information.

1) Profile information that Telecommunicators obtain data from could be:
   a) form filled out by the caller, family member, social worker, and/or others
   b) vCard or medical records forwarded by the caller
   c) link to other databases such as medical records, vehicle, sensors, or other data information
   d) Emergency service organization
   e) Communication service providers

2) Primary specific information on caller to be included in database could be:
   a) Language

b) Communication Modes – for example, can't hear but can speak
c) Preferred media types (video, text, audio, voice, AAC, etc.)
d) Disability
e) Frequent address(es)
f) Medical Alert – medications – known allergies
g) Special exit and route procedures
h) Link to other databases
i) Others

It is recommended that the following references are considered and possibly extended when establishing the system for storing, managing, signaling and using caller data information for accessible NG9-1-1:

- Internet Engineering Task Force (IETF) RFC 3840 and IETF RFC 3841, caller preferences and caller capabilities[16]
- NENA 71-001 NG9-1-1 Additional Data[17]
- ETSI ES 202 746 User Profile Preferences and Information[18]
- IETF on additional data in emergency calls: draft-ietf-ecrit-additional-data[19]
- Global Public Inclusive Infrastructure (GPII)[20]

XVII. CONSUMER EDUCATION

The evolution to NG9-1-1 is likely to take some time, and will produce a changing patchwork of available technologies as local and state migration is completed nationwide. As transition occurs, it is important to educate the public on new forms of available communication access to 9-1-1 and where the communication access is available for use.

Even today, consumers are not aware of options being offered to reach 9-1-1, such as alternative communication modes and relay services. To the extent possible, consumers should be made aware of the best way to help themselves in an emergency, optimal modalities to meet their individual communication preferences, and the best questions to ask PSAPs to make sure the appropriate communication modes are available when and where they are needed.

[16] http://www.ietf.org/rfc/rfc3841.txt
[17] http://www.nena.org/general/custom.asp?page=NG911_AdditionalData
[18] http://www.etsi.org/deliver/etsi_es/202700_202799/202746/01.01.01_60/es_202746v010101p.pdf
[19] http://tools.ietf.org/html/draft-ietf-ecrit-additional-data
[20] http://gpii.net

The need for public education has been stated by previous FCC advisory groups, including the Communications Security, Reliability and Interoperability Council (CSRIC), Working Group 4B:

> *"Effective public education and awareness programs about NG9-1-1 and the appropriate use of NG9-1-1 must be developed. Educating the public about NG9-1-1 should be done in two phases, with two distinct results in mind. First, the public should be educated about the benefits of NG9-1-1 to create a groundswell of support for its implementation. An informed and engaged public will act as an extremely powerful and influential lobbying group with decision makers who may be under-informed about the creation of NG9-1-1. Later, when transition is nearing completion, the public must also be educated about NG9-1-1's expanded capabilities for receiving information and about how they can best use these new options for contacting emergency services, as well as the limitations of the new system."*

It is essential that NG9-1-1 public education include specific components to address the needs of people with disabilities. Every community will tailor its consumer education to meet its particular needs, but there are a number of topics that should be considered, such as:

- Subscriber/user account information
- Caller profile registration
- How the 9-1-1 call is processed when registered or not registered
- Choosing relay services or PSAP who will connect callers with SLI or CA
- Pros and cons of relay services and MCLS
- Options for communication access while calling 9-1-1
- Criminal charges for improper use or abuse of 9-1-1 calls

It will be a challenge, but necessary, to devise a plan that includes information on HOW to reach 9-1-1 as well as WHERE specific communication modalities are available to individual PSAPs. It will also be a challenge to update this information as the migration to NG9-1-1 continues. State and local 9-1-1 authorities are strongly encouraged to work with individuals, advocates and organizations familiar with the emergency communication preferences of people with disabilities to identify their needs – from their perspective. Melding these needs with the particular needs of PSAP Telecommunicators will provide the framework for a public education program that enables PSAP Telecommunicators the ability to help callers in truly effective ways.

There may be a variety of options for how and where NG9-1-1 consumer education could be conducted. While in-person or video education may be preferable, other methods may be useful, such as webcast demonstrations (i.e., YouTube, etc.), public service announcements with open captions, and SLI and descriptive video services. Public education could be conducted in a number of venues, including Deaf and Hard of Hearing Commission meetings, Deaf/hard of hearing/deaf-blind/late deafened clubs/organizations as well as organizations or associations servicing persons with disabilities meetings, booths at events, and informational presentations.

The timing of efforts should not only consider conducting consumer education before a new emergency communication option is available, but ongoing education after implementation of new technologies – perhaps on an annual basis. The credibility of the information is crucial, so

presenters should be selected carefully, and it is recommended that the message be delivered by both PSAPs and community leaders; making sure that all appropriate accommodations are available (SLIs, caption, etc.). A collaborative approach will not only ensure appropriate expertise, but may also leverage resources and facilitate the process of reaching the greatest number of people who need the information.

The options for public education contained in this document are not meant to be an exhaustive or detailed list, but are intended to raise general issues for providing information about the NG9-1-1 system to the public that is truly useful for both consumers and PSAP Telecommunicators, and effective in making both callers and PSAP Telecommunicators ready for communicating in an emergency.

XVIII. CONCLUSION

Live video and text communication is becoming popular for communication worldwide and will be commonly used among all people.

Video technologies (stand alone, built-in webcam via computer, tablets & smart phones) are expanding, as well as applications which individual use for video communication. Products and applications from video relay service will not be the only method for calling 9-1-1. Video conferencing is also expanding. It is essential that individuals have direct access to 9-1-1 via video (as well as audio, real-time text, text messaging, and data) using any application and device.

Text communication via IP and various methodologies for cellular phones and land line communications are being used more and more every day. TTYs continue to be a viable method of communication for people with various disabilities. It is also essential that individuals have direct access to 9-1-1 via text methods using any application and device.

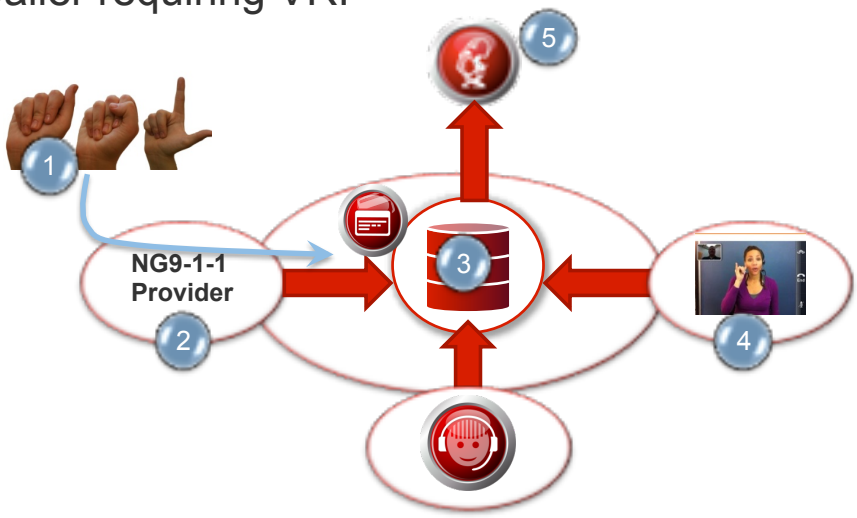
An additional benefit of having direct video call to 9-1-1 is Telecommunicators will be able to provide visual information on callers and their surroundings to first responders. This will help to minimize frustration and problems for both callers and first responders, as well.

Like hearing callers, people with disabilities will be able to call 9-1-1 directly and have Telecommunicators to connect the caller with a SLI or CA. Clear communication during times of emergency is critical. However, many individuals may not be able to communicate effectively due to their disabilities, injury or shock. Therefore, it is recommended that Media Communication Line Services (MCLS) be established to facilitate effective communication for people who need to contact NG9-1-1 in an emergency.

APPENDIX A: NG9-1-1 PC3[3] Use Case 3: ASL Caller Requiring Video Remote Interpreter (VRI)

AVAYA

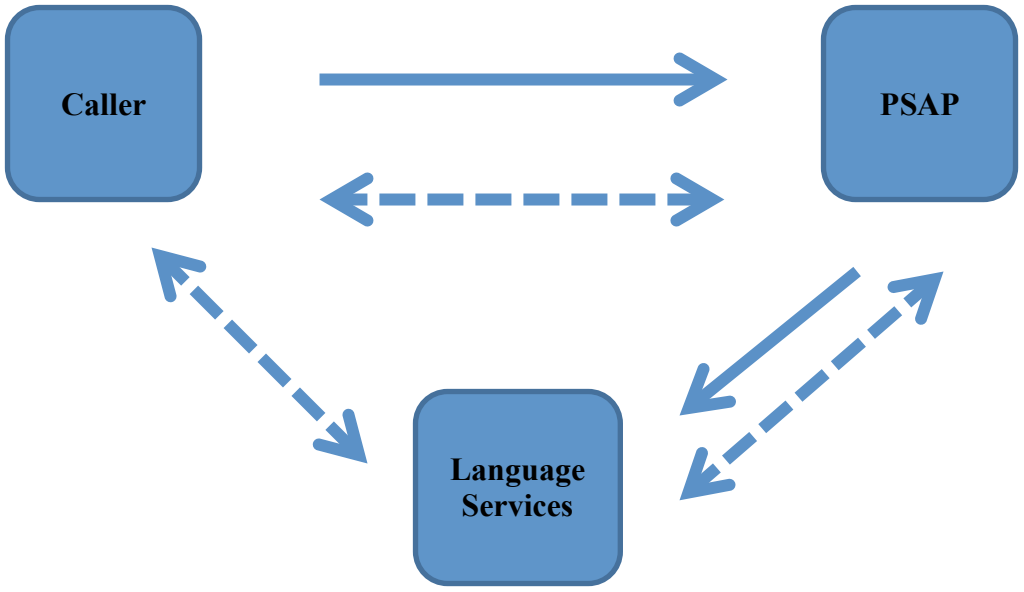
NG9-1-1 PC3 Use Case 3: ASL Caller requiring VRI



1. ASL Video Emergency Call
2. NG9-1-1 with video
3. PSAP establishes PC3 with caller
4. VRI is added to conference
5. Centralized recording captures media from all endpoints

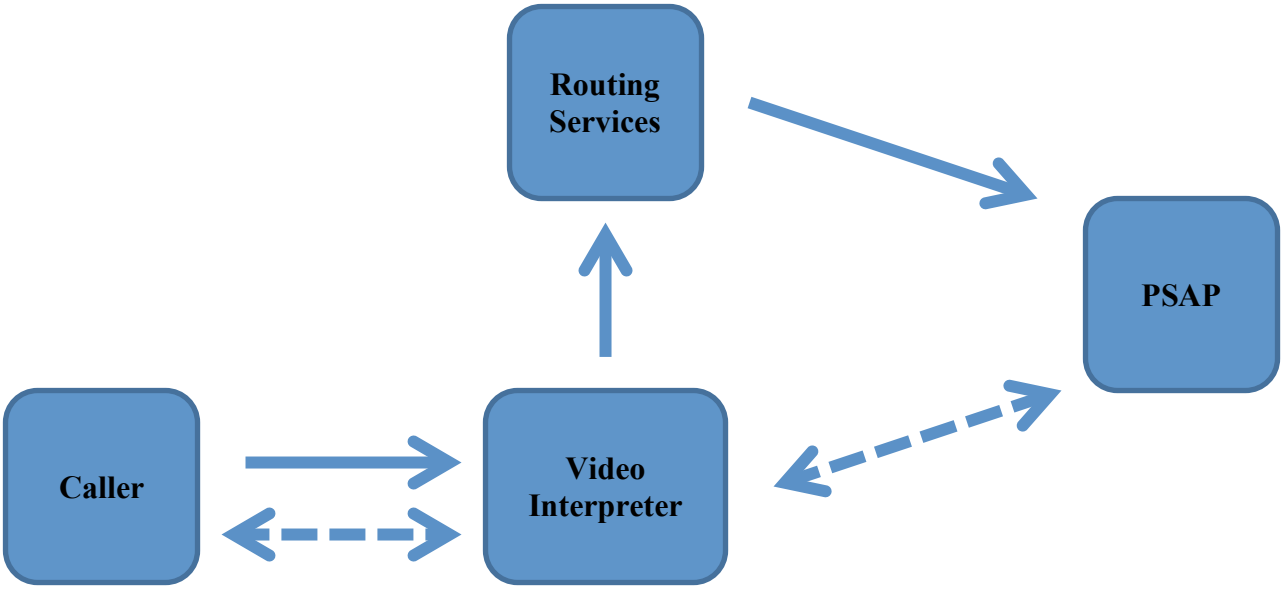
APPENDIX B: Legacy 9-1-1 - Hearing person who speaks foreign language other than English calls 9-1-1

When a hearing person calls, the Telecommunicator recognizes that s/he speaks another language. The Telecommunicator will connect to a language services agency to provide translation services, turning the call into a three-way conference call. The PSAP has a contract with the language services agency.



APPENDIX C: Legacy 9-1-1: Video Relay Service (VRS) – Calling 9-1-1

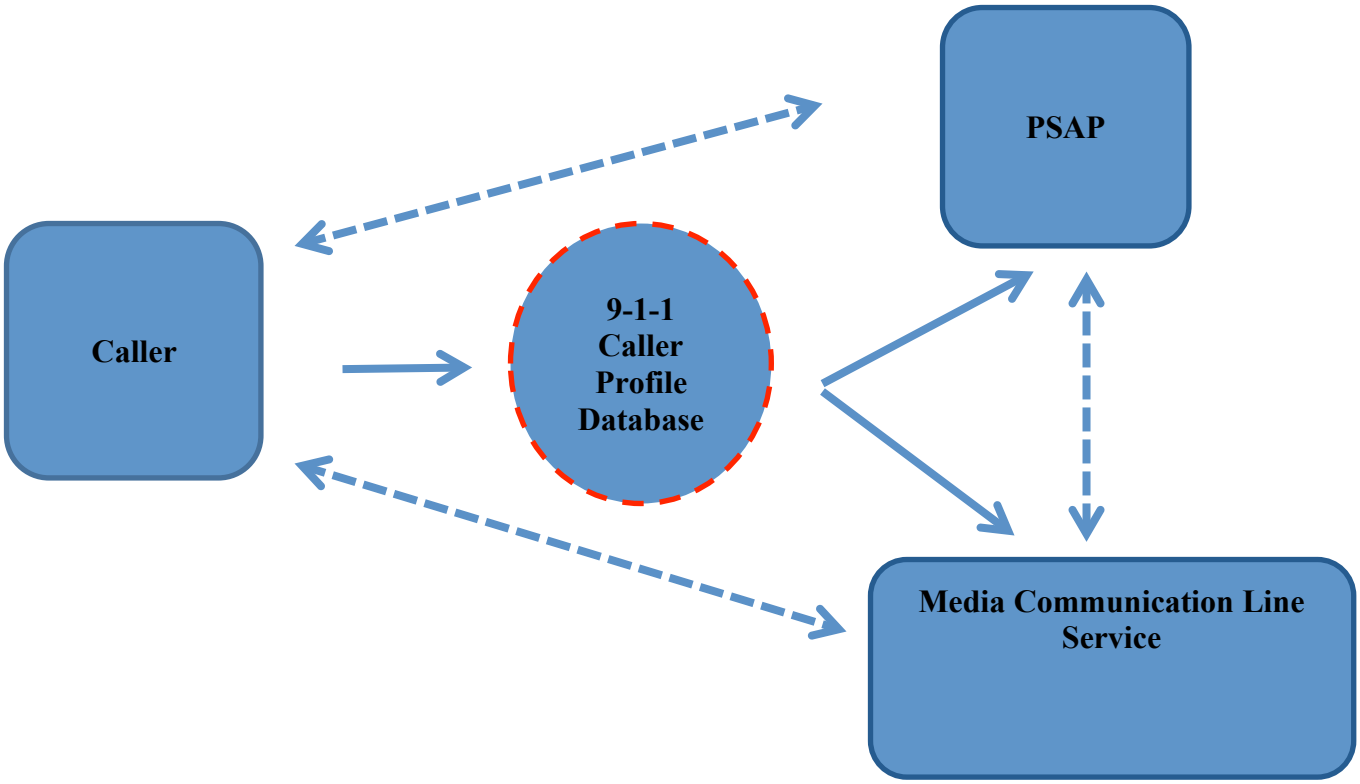
- A person calls VRS first and then interpreter call 9-1-1.
- VRS providers have contracts with vendors that provide routing services to appropriate PSAPs.
- Video Interpreters call the routing service vendor first and give address to a live person prior to connecting to PSAPs.
- Calls can go through non-emergency, emergency or administrative lines rather than via the 9-1-1 line. Telecommunicators have priority to respond to calls coming through 9-1-1 line, so non-9-1-1 line calls can result in delayed responses.
- The video interpreter relays communication between Telecommunicator and caller.



APPENDIX D: NG9-1-1: A person calls 9-1-1 using multimedia (caller profile)

When a person calls NG9-1-1, the signaling will reflect the desired communication mode, language preference and a specific combination of media types, and then will connect to the PSAP, engaging the Media Communication Line Service simultaneously. During the call set-up, MCLS will be invoked automatically as necessary, and the Telecommunicator will receive the caller profile at her/his station stating the type of communication mode the caller prefers prior to answering the call. All three parties involved in the call will have video conferencing. There will be different types of communication modalities involved depending on the need of the callers. Examples are shown in Diagram E.

PSAP will record all media types involved in the conversations.



APPENDIX E: NG9-1-1: A person calls 9-1-1 using multimedia

When a person calls 9-1-1 via video or other types of media, the Telecommunicator recognizes that the caller needs SLI or another type of assistance such as revoicers, and then connects to MCLS (same concept as language services). The caller's terminal will engage in a call, such as video conferencing. There will be different types of communication modalities involved depending on the needs of the callers. Examples are:

- Deaf-Blind (DB) – interpreter will voice what DB signs and then Telecommunicator responds by typing to DB who will read Large Print or Braille
- Speech Disabled (SD) – interpreter will revoice what the SD says and then Telecommunicator will talk directly to SD
- Late Deafened (LD) or others who are learning ASL – LD will voice to Telecommunicator and have interpreter to sign along with captions, or speechread the interpreter

PSAP will record all media types involved in the conversations.